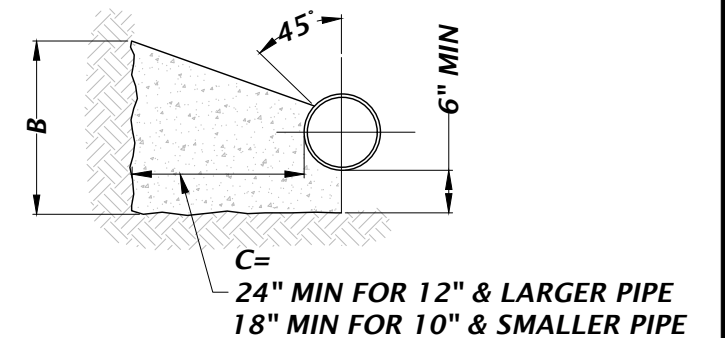
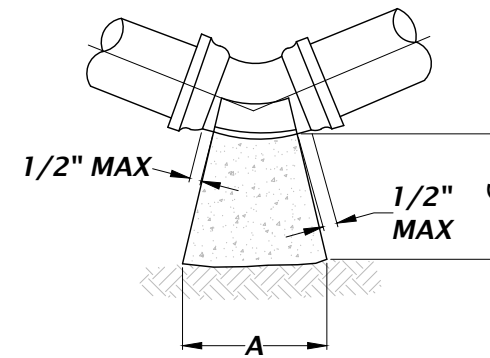
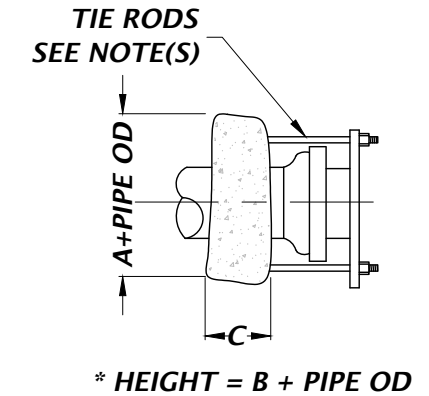
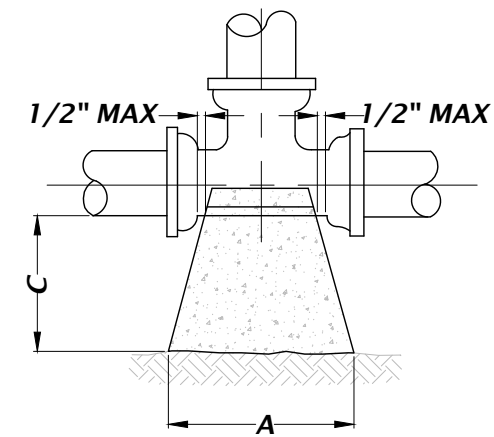


GENERAL NOTE(S):

1. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL.
2. THESE TABLES SHOW MINIMUM SIZES FOR THRUST BLOCKS IN GOOD SOIL (A-1 THRU A-3, CLEAN SANDS AND GRAVELS) WITH MINIMUM BEARING CAPACITY OF 2000 psi.
3. POOR SOILS A-4 THRU A-8, SILTY SOILS, CLAYS, MUCK AND PEAT WILL REQUIRE LARGER THRUST BLOCKING.
4. BOTH CONCRETE THRUST BLOCKS AND TIE RODS MUST BE USED WHEN, IN THE JUDGEMENT OF THE ENGINEER, THE NATURE AND CRITICALITY OF AN INSTALLATION IS SUCH AS TO REQUIRE POSITIVE ASSURANCE OF STABILITY.
5. THE USE OF THRUST BLOCKS SHALL BE LIMITED TO SITUATIONS SUCH AS POINT REPAIR WHERE EXPOSING SEVERAL JOINTS OF PIPE IS NOT FEASIBLE DUE TO EXISTING GROUND CONDITIONS.
6. CONCRETE COLLARS WITH TIE RODS MAY BE USED ON DEAD END LINES AT THE CONTRACTOR'S DISCRETION. NUMBER OF TIE RODS REQUIRED IS AS FOLLOWS:

| | |
|-----------|--|
| 3" - 8" | DIAMETER MAIN - 2 TIE RODS REQUIRED PER JOINT (5/8" ROD) |
| 10" - 12" | DIAMETER MAIN - 4 TIE RODS REQUIRED PER JOINT (5/8" ROD) |
| 14" - 16" | DIAMETER MAIN - 6 TIE RODS REQUIRED PER JOINT (5/8" ROD) |
7. TIE RODS AND NUTS SHALL CONFORM TO AWWA/ANSI CIII/A21.11
8. TIE RODS AND NUTS SHALL PROVIDE MIN YIELD AND TENSILE STRENGTH OF 45,000 PSI AND 60,000 PSI, RESPECTIVELY.
9. MAXIMUM TEST PRESSURE TO BE 150 PSI.
10. SAFETY FACTOR = 1.5



THRUST BLOCK FOR BENDS

| SIZE | 90° BEND | | | SF BEARING SURFACE | 45° BEND | | | SF BEARING SURFACE | 22-1/2° BEND | | | SF BEARING SURFACE | 11-1/4° BEND | | | SF BEARING SURFACE |
|------|----------|-----|-----|--------------------|----------|-----|-----|--------------------|--------------|-----|-----|--------------------|--------------|-----|-----|--------------------|
| | A | B | C | | A | B | C | | A | B | C | | A | B | C | |
| 4" | 16" | 16" | 18" | 1.78 | 14" | 16" | 18" | 1.56 | 14" | 16" | 18" | 1.56 | 14" | 16" | 18" | 1.56 |
| 6" | 22" | 32" | 18" | 4.89 | 16" | 18" | 18" | 2.00 | 14" | 16" | 18" | 1.56 | 14" | 16" | 18" | 1.56 |
| 8" | 32" | 36" | 18" | 8.00 | 24" | 28" | 18" | 4.67 | 16" | 18" | 18" | 2.00 | 14" | 16" | 18" | 1.56 |
| 10" | 36" | 46" | 18" | 11.50 | 26" | 36" | 18" | 6.50 | 20" | 24" | 18" | 3.33 | 14" | 18" | 18" | 1.75 |
| 12" | 44" | 56" | 24" | 17.11 | 32" | 40" | 24" | 8.89 | 24" | 30" | 24" | 5.00 | 16" | 20" | 24" | 2.22 |
| 14" | 52" | 62" | 24" | 22.39 | 36" | 48" | 24" | 12.00 | 26" | 36" | 24" | 6.50 | 20" | 24" | 24" | 3.33 |
| 16" | 58" | 72" | 24" | 29.00 | 40" | 54" | 24" | 15.00 | 32" | 38" | 24" | 8.44 | 22" | 26" | 24" | 3.97 |

THRUST BLOCK FOR TEES AND PLUGS

| SIZE | 90° BEND | | | SF BEARING SURFACE |
|------|----------|-----|-----|--------------------|
| | A | B | C | |
| 4" | 16" | 16" | 18" | 1.78 |
| 6" | 20" | 24" | 18" | 3.33 |
| 8" | 26" | 32" | 18" | 5.78 |
| 10" | 32" | 40" | 18" | 8.89 |
| 12" | 36" | 48" | 24" | 12.00 |
| 14" | 40" | 56" | 24" | 15.56 |
| 16" | 48" | 60" | 24" | 20.00 |